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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/118,684	07/17/1998	STEVEN M. DOMER	SC10508C-P1	9271

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VINCENT B INGRASSIA
MOTOROLA INC
INTELLECTUAL PROPERTY DEPARTMENT
PO BOX 10219 SUITE R3108
SCOTTSDALE, AZ 852710219

EXAMINER
TILLERY, RASHAWN N

ART UNIT	PAPER NUMBER
2612	7

DATE MAILED: 09/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/118,684	DOMER ET AL.	
	Examiner	Art Unit	
	Rashawn N Tillery	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 July 2002* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-17* is/are rejected.

7)☒ Claim(s) *4* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

Applicant's arguments filed July 12, 2002 regarding claims 1, 7 and 15 have been fully considered but they are not persuasive.

The examiner acknowledges Applicant's attempt to overcome the prior art rejection and fully understands Applicant's invention; however, Applicant's claim language is still written broadly enough where the Liang patent can be read on it.

Applicant's invention, as described in the specification, teaches that the pixel signals of different regions of an image sensor are "characterized" by their variations to a uniform light intensity; and that the variations of each respective region is represented by control data for gain adjustment.

Applicant is claiming that the control data represents a "predetermined region characterization."

Applicant is not claiming that the control data is representative of the known variation of signals produced from each respective region.

Liang, as Applicant correctly interpreted, teaches that the gain is determined by a maximum voltage previously detected in a data stream of a row of pixels.

Therefore, because Applicant's claim language is written so broadly, Liang's detected maximum voltage can easily be interpreted to read on the claimed "control data representing a predetermined region characterization" since, like Applicant's

"control data," Liang's detected maximum voltage is used to amplify the pixel signals to different gains when the pixel signals are generated in different rows (regions) of the optical sensor.

Regarding Applicant's arguments concerning the conceded prior art, the examiner notes that it was not examiner's intention to imply that Applicant conceded that it would have been obvious to compensate for different responses to light; only that, Applicant's conceded prior art taught that it is well known in the art that photoactive devices in different regions of the sensor generate pixel signals of different amplitudes; and that it would have been obvious, in view of Applicant's teachings, for Liang to compensate for the different responses to light.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily

published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

1. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by Liang et al (US5781233).

Regarding claim 1, Liang discloses, in figures 1and 5, an imaging sensing device comprising:

an optical sensor (16) having an output for providing pixel signals generated in response to light projected onto regions (rows) of the optical sensor (see col. 10, lines 22-28); and

an amplifier (46) having a first input (20, 28) coupled for receiving the pixel signals, a first output (29) for providing an imaging signal, and a control input (45) coupled for receiving control data representing a predetermined region characterization (previously detected maximum voltage) to amplify the pixel signals to different gains when the pixel signals are generated in different regions (rows) of the optical sensor (see col. 12, lines 43-67).

Regarding claim 2, see col. 7, lines 41-55 where the photodiodes are discussed and col. 6, lines 53-61 where the photosensor pixel array is discussed.

Regarding claim 3, see col. 6, lines 53-61 where it is discussed that the PPA, 16, resembles a RAM.

Regarding claim 6, Liang teaches outputting an analog video signal for display on a monitor (see col. 14, lines 56-66 and col. 15, lines 1-15); however, as an obvious alternative, Official Notice is taken that it is well known in the art to utilize analog to

digital converters for outputting digital imaging data. It would have been highly desirable to do so for increased image quality.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 7-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al in view of Applicant's conceded prior art.

Regarding claims 7 and 17, see claim 1 above. In addition, Liang does not expressly disclose that the different rows (regions) of the sensor have different responses to the light projected from the image, just that the analog information stored in each cell in the array is a measure of the light intensity on that pixel.

Applicant teaches, on page 1, that it is well known in the art that photoactive devices in different regions of the sensor generate pixel signals of different amplitudes even when the light intensity is the same. It would have been obvious to one or ordinary skill in the art at the time the invention was made to apply different gains, as taught by Liang, to compensate for different responses to light across different regions of an optical sensor, since Applicant's conceded prior art teaches that different regions generate different amplitudes.

Regarding claim 8, see col. 10, lines 22-28 where the sensor array is discussed.

Regarding claim 9, see claim 7 above. In addition, depending on the amount of light projected on an individual row (region) the gain is adjusted accordingly.

Regarding claim 10, see claim 9 above. In addition, regarding the difference in amplitudes, since each row (region) would output signals of different levels, a relatively light row (first region) would have less gain than a dark row (second region).

Regarding claim 11, Liang discloses, in figure 1, an address encoder, 14, for selecting first and second rows (regions) of the optical sensor with address data to produce first and second pixel signals.

Regarding claim 12, Liang discloses, in figure 5, multiplexing (20) first and second pixel signals with address data (see col. 10, lines 37-65).

Regarding claim 13, Liang discloses, in figure 5, storing the control data in gain register, 44; and retrieving the control data with the address data from line 41.

Regarding claim 14, see claim 6 above. In addition, see figure 4, element number 46 where the amplifier is shown.

Regarding claim 15, see claim 7 above.

Regarding claim 16, Liang teaches amplifying first and second pixel signals however, the chromaticity is not expressly disclosed. It would have been obvious to one of ordinary skill in the art at the time the invention was made to produce the signals in black and white or color according to the desired output.

3. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Liang et al in view of Fossum et al (US5949483).

Regarding claim 5, Liang discloses, in figure 3, an optical sensor including a multiplexer (M17) having a first input coupled to the output of the optical sensor. Liang is capable of selecting photoactive devices randomly, row by row; however, Liang does not expressly disclose a selection input for selecting among photoactive devices of the optical sensor.

Fossum teaches, in figures 6A-6C, selecting groups of photodiodes to form contiguous blocks within the array (see col. 10, lines 54-65). It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement Fossum's teachings. One would have been motivated to do so in an effort to facilitate low light imaging.

Allowable Subject Matter

4. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art does not teach or fairly suggest an imaging device comprising an optical sensor and an amplifier wherein the device has a memory circuit for storing the control data, the memory circuit having an address input coupled for receiving the pixel addresses and an output coupled to the control input of the amplifier.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rashawn N Tillery whose telephone number is 703-305-0627. The examiner can normally be reached on 9AM-6:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on 703-305-4929. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

RNT
September 24, 2002

WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600